REMARKS

The drawings have been objected to under 37 CFR §1.84(p)(5), based on the failure of the text of the specification to include the reference number "29". In response to this ground of objection, the specification has been amended at page 19, line 1 to identify the sensor by the reference numeral 29. Accordingly, reconsideration and withdrawal of this ground of rejection are respectfully requested.

The drawings have been further objected to under 37 CFR §1.83(a) for allegedly failing to show every feature of the invention specified in the claims. In particular, paragraph b) on page 2 of the Office Action indicates that the flow of helium gas through the catalyst must be shown or the feature cancelled from the claim. However, Applicants respectfully traverse this ground of rejection, because the flow of helium gas is not itself a part of the claimed invention. Rather, as is now more clearly recited in the final paragraph in Claims 1 and 5, the reference to a flow of helium gas is incorporated only to define a certain characteristic of the catalyst according to the invention. That is, in particular, the catalyst has a desorption capacity that reaches a maximum at a temperature within the range of from 200 to 220°C. when a heating test is performed by heating the catalyst at the rate of 5 to 10°C. per minute in a flow a helium gas. Neither Claim 1 nor Claim 5 suggests, however, that the flow of helium gas is itself an element of the invention, or that providing a flow of helium gas is a step

in the method according to the invention. Rather, as noted previously, the reference to such a gas flow simply defines the nature of the catalyst. Accordingly, reconsideration and withdrawal of this ground of objection are respectfully requested.

In response to the objection to the specification, amendments to the specification have been made as required. In addition, in response to the objections to Claims 1-3 and 5, the word "type" has been replaced by the word "element". Finally, the title of the invention has been amended to shorten it.

Claims 1-6 have been rejected under 35 USC §112, second paragraph for failing to particularly point out and distinctly claim the subject matter of the invention, based on certain formal issues set forth at pages 4 and 5 of the Office Action. In response to these grounds of rejection, Applicants have amended the claims in a manner which addresses and is believed to resolve each of the cited formal issues. In particular, the claim elements which are recited in the form of a Markush grouping have been clarified in such a manner that they are now believed to be clear and definite. Accordingly, reconsideration and withdrawal of this ground of rejection are respectfully requested.

Claims 1-6 have been rejected under 35 USC §103(a) as unpatentable over International Patent Document WO 97/47864 (hereinafter referred to as Hanaoka et al). However, for the reasons set forth hereinafter, Applicants respectfully submit that Claims 1 through 5, which remain of record in this

application, distinguish over the cited reference, whether considered separately or in combination with other references. Claim 6 has been cancelled as redundant in view of the amendments made herein.

Table 7 at page 59 of the Hanaoka et al reference discloses a catalyst composition of Rh, Pt, Sr, Ti, Ce, and Mg. In contrast to this composition, the catalyst according to the present invention contains a carbon monoxide absorbing material such as Pd, Ir or Ru, none of which is contained in the catalyst disclosed in Hanaoka et al.

Hanaoka et al discloses a catalyst composition which contains noble metals (Rh, Pt, Pd). However, the temperature at which desorbed CO volume reaches the maximum level varies, depending on the carrying amount of Pd, even if Pd is in fact contained therein, as indicated by Table 4 at page 30. According to the present invention, on the other hand, the exhaust cleaning catalyst has a CO desorption capacity that reaches a maximum level at a temperature within the range of 200 to 220°C. during a heating test under the circumstances referred to previously (that is, when the temperature is raised at a rate of 5 to 10°C. per minute in a helium gas flow). The use of such a catalyst to satisfy the condition mentioned above improves the anti-SOx property of the catalyst. The Hanaoka et al reference is silent on such an exclusive heating test, or on the specific properties of the catalyst now recited in Claims 1 and 5, and referred to herein. Accordingly, independent Claims 1 and 5 herein distinguish over the Hanaoka et al reference.

In light of the foregoing remarks, this application should be in condition for allowance, and early passage of this case to issue is respectfully requested. If there are any questions regarding this amendment or the application in general, a telephone call to the undersigned would be appreciated since this should expedite the prosecution of the application for all concerned.

It is respectfully requested that, if necessary to effect a timely response, this paper be considered as a Petition for an Extension of Time sufficient to effect a timely response and shortages in other fees, be charged, or any overpayment in fees be credited, to the Deposit Account of Crowell & Moring LLP, Account No. 05-1323 (Docket #381NP/48511).

Respectfully submitted,

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ABSTRACT OF THE DISCLOSURE

In a method and apparatus for removing nitrogen oxides from the exhaust gas of a lean-burn automobile, a CO adsorbent component, which may, for example be made of Pd, Ru or Ir, is contained in an exhaust gas cleaning catalyst which captures NOx when the air-fuel ratio of exhaust gas is higher than theoretical air-fuel ratio, and reduces the captured NOx when the air-fuel ratio of exhaust gad is less than or equal to the theoretical air-fuel ratio. The catalyst, which includes Rh, Pt, and element selected from among the alkaline and alkaline earth metals (Na, Mg, K, Li, Cs, Sr and Ca), and a CO adsorbent material comprising Pd, Ir or Ru, has a CO desorption capacity that reaches at maximum level at a temperature within the range from 200 to 220°C. when its temperature is increased in a He gas flow at the rate of 5 to 10°C./min, after said catalyst is saturated at 100°C. Exhaust gas having an air-fuel ratio higher than theoretical air-fuel and exhaust gas having an air-fuel ratio less than or equal to the theoretical air-fuel ratio are alternately made to flow to the catalyst.